REMARKS

I. Status of the claims

Claims 1-9 and 11 are pending. Claims 12-14, directed towards an apparatus, have been cancelled without prejudice. Claim 1 has been amended to clarify that the coated components are cured to completion. Support for this amendment may be found in page 6, lines 8-10 of the specification. Applicants also note that the phrase "curing the coated components to completion" more accurately reflects the claim term "ausgehärtet," which was recited in the original claims of the German PCT application. In claim 11, the informal amendment to correct the dependency to claim 1 has been reintroduced in proper format.

II. Provisional Data Sheet

The examiner notes that the provisional data sheet supporting the amendment to the specification to define "Dobeckan MF 8001 UV-2" was not received by the Office. Since the amendment to the specification was not supported by the provisional data sheet, the examiner has made a new-matter rejection under 35 U.S.C. § 132.

Applicants provide an additional copy of the provisional data sheet for Dobeckan MF 8001 UV-2 describing the resin by the amended definition. In view of this submission, Applicants request that the examiner withdraw the rejection under 35 U.S.C. § 132.

III. Rejection under 35 U.S.C. § 103(a) over Buckley

The examiner rejected claims 1-14 under 35 U.S.C. § 103(a) as being unpatentable over European Patent No. EP 0 064 147 to Buckley et al. ("Buckley"). With regard to Applicants' previous remarks relating partial and complete curing, the examiner states that unless the claims specify a degree of curing that differs from Buckley, partial and complete curing will be considered within the scope of the claim term "curing."

Applicants have amended the claim term "curing" to specify that the coated components are cured to completion. In contrast, the coatings of Buckley are only "gelled," which Buckley describes as partially polymerized. Buckley emphasizes that the composition should only be gelled, and it is unclear that Buckley would work in its desired capacity if complete curing was effected. This is especially true in view of the widespread belief, before Applicants' invention,

that near-infrared radiation could not be used to achieve complete curing because of the unacceptable adverse side effects of surface carbonization. See Example 4 of Applicants' specification. Therefore, one skilled in the art would have no motivation to modify the teachings of Buckley by curing the partially-polymerized coatings to completion; if modified, there would be no expectation of success.

Accordingly, Applicants respectfully request that the examiner withdraw this rejection under 35 U.S.C. § 103(a).

IV. Rejection of claims 7-9 under 35 U.S.C. § 103(a) over Buckley in view of Lienert

The examiner maintains the rejection of claims 7-9 under 35 U.S.C. § 103(a) over Buckley in view of German Application No. DE 196 48 133 A1000 to Lienert ("Lienert") for reasons of record.

Applicants rely the amendment and remarks presented above to distinguish the claimed invention over Buckley. Lienert, the secondary reference, does not cure the deficiencies of Buckley. Applicants refer to the previously filed responses for a more detailed discussion of Lienert. Accordingly, Buckley in view of Lienert does not render the claimed invention obvious, and Applicants respectfully request that the examiner withdraw this rejection under 35 U.S.C. § 103(a).

V. Rejection of claims 12-13 over Linderoth

The examiner has rejected claim 12 under 35 U.S.C. § 102(b) over U.S. Patent No. 4,234,624 to Linderoth et al. ("Linderoth"), and claim 13 under 35 U.S.C. § 103(a) over Linderoth.

In this response, Applicants have cancelled claims 12-13. Accordingly, Applicants respectfully request that the examiner withdraw these rejections over Linderoth.

VI. Rejection of claims 1-14 under 35 U.S.C. § 103(a) over Buckley in view of Lienert and Linderoth

The examiner has rejected claims 1-4 under 35 U.S.C. § 103(a) as being unpatentable over Buckley, optionally in view of Lienert, and further in view of Linderoth. As set forth above, neither Buckley nor Lienert, nor Linderoth, nor any combination thereof teach or suggest

the applicants' claimed invention. Accordingly, the applicants' respectfully request that the examiner withdraw this rejection.

Furthermore, Applicants note that Linderoth fails to teach near-infrared curing of the types of polymers used for electrical insulation, as claimed by Applicants. Rather, Linderoth discloses different polymers that are cured by an entirely different reaction—a vulcanization-type reaction. Both the pressure and the peroxides used and applied in the Linderoth process affect the wavelength of the radiation used by Linderoth during the curing process. Without the pressure and peroxides, one skilled in art would not expect near-infrared radiation to crosslink the polyethylene polymers disclosed in Linderoth because near-infrared is not energetic enough to crack the chemical bonds of polyethylene polymers in Linderoth. Thus, Linderoth does not teach the use of near-infrared radiation in the curing process.

VII. Conclusion

Applicants request reconsideration of this application in view of the amendments and remarks set forth above. The examiner is encouraged to contact the undersigned counsel in order to resolve any remaining issues.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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Beck Electrical Insulation GmbH

Electrical Insulation System

UV-Impregnating Resin

Dobeckan® MF 8001 UV-2

Provisional Data Sheet

04/04

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Product description

Dobeckan® MF 8001 UV-2 is a monomer free, one-component impregnating resin based on an especially modified unsaturated polyester resin.

With this newly developed resin system the use of the usual reactive thinner, styrene or vinyltoluene is fully dispensed with, offering numerous advantages in impregnating quality, processing reliability and environmental protection as well as storage and transport stability.

Of decisive importance is that by using Dobeckan® MF 8001 UV-2 resin the emission will be reduced to practically insignificant values, making an elaborate exhaust system unnecessary.

Areas of application

Dobeckan® MF 8001 UV-2 is suitable for all conventional rotating and stationery windings.

Properties of insulator

The tough, hard-cured material shows very good mechanical and electrical insulating properties. Because of the extremely good penetration - depending on the processing method - a very high degree of filling is achieved which guarantees

- substantially reduced partial discharge in frequency converter
- excellent heat conductivity
- resistance to centrifugal force

Owing to its high temperature index of >180 Dobeckan® MF 8001 UV-2 can be used for machines in thermal class H.

UL have registered the product under File No. E 73 288.

Storage and transportation

Since the monomer free Dobeckan® MF resins do not fall under the dangerous substance regulations

- transport extern/intern is simplified
- special depot is not required.

Special emphasis is given to the exceptional storability of this one-component impregnant (>12 months at 23°C).

Processing methods

Dobeckan® MF 8001 UV-2 is intended for use in the hot-dip-impregnating process with UV-radiation supported curing.

First – the winding should preferably be preheated by current flow. With a winding temperature of 130 – 150°C very short dipping times of approx. 1-2 minutes and drainage times of 5-10 minutes ensue. The actual curing also occurs by current flow. The added UV radiation for approx. 2-4 minutes leads to the rapid drying of the core, the bandages, as well as other insulating materials. With this processing method an effective through-put with additional cooling should be ensured to guarantee sufficient tank stability.

The possibility of working with relatively high preheating object temperatures is an advantage, since the boiling point of reactive thinners does not have to be considered. For the same reason a rapid heat increase up to curing temperatures leads to higher productivity.

Table 1 - Description, mixing ratio, viscosity

Description	Mixing ratio by weight	Viscosity at 23°C mPa·s	Appearance of the resin compound
MF 9001 UV2	one component	5000 - 10000	liquid, transparent, slightly yellow

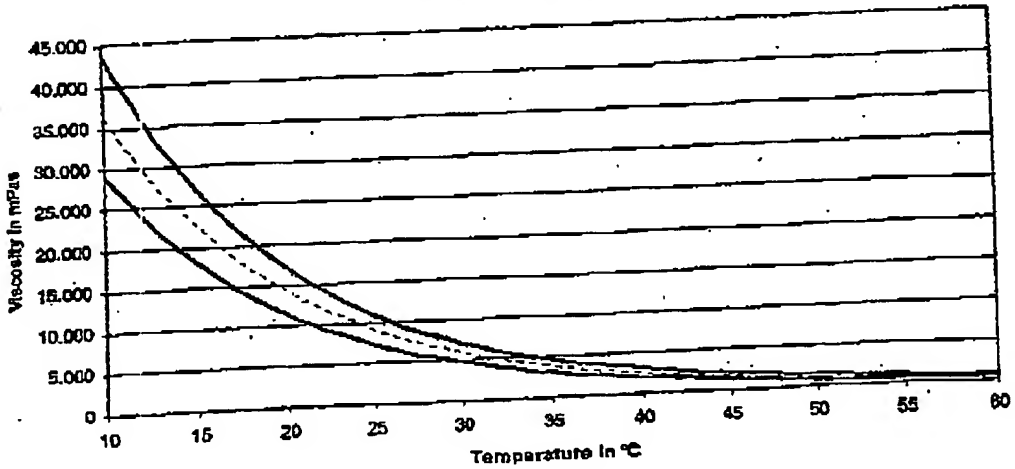
Table 2 - Gel time, curing conditions

	°C	120	150	160	170
Temperature					
Reactivity	min	8 - 15			
Curing	min		30 - 40	10 - 20	7 - 10

Table 3 - Properties of resin as received

Shelf life at 23°C	>12	months
Pot life at 23°C	>12	months
Density at 23°C, DIN 61 757	1.01 – 1.05	g/cm³

Viscosity-Temperature-Diagram
Dobeckan MF 9001 UV-2



Curing of test specimen: 4 h / 160°C

Table 4 - Temperature Index according IEC 60 216

Test criterion	Limiting value	TI
Proof voltage, IEC 172 (Twisted Pair)	1000 V	172
Bond strength, IEC 290 (Helical Coil)	22 N	183

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Table 5 - Mechanical properties of insulator

Test criterion	Condition	Value	Unit
Conditions in thick layer IEC 60 464-2	Upper side Under side interior	smooth not tacky hard, uniform	S 1 U 1 I 2,1
Bond strength twisted coil test IEC 1033, method A	23°C 155°C 180°C	- 70 60	N N N

Table 6 - Dielectric properties of insulator

Test criterion	Condition	Value	Unit
Volume resistivity after water immersion Beck-test 5	initial value 7 d storage	$4 \cdot 10^{16}$ $3.7 \cdot 10^{15}$	Ω·cm Ω·cm
Volume resistivity at elevated temperature Beck-test 13	155°C	$>1 \cdot 10^{15}$	Ω·cm
Electric strength after water immersion Beck-test 6b	initial value 24 h storage	160 94	kV/mm kV/mm
Electric strength at elevated temperature Beck-test 6a	105°C 155°C 180°C	- 160 -	kV/mm kV/mm kV/mm
Dielectric dissipation factor tan δ=0,1 at	50 Hz, 1 V 1 kHz, 1 V 10 kHz, 1 V	52 78 -	°C °C °C
Relative permittivity tan δ=0,1 at	50 Hz, 1 V 1 kHz, 1 V 10 kHz, 1 V	6,8 3,2 -	- - -
Beck-test 3 and 11			

Table 7 - Chemical properties of insulator

Test criterion	Condition	Result, value	Unit
Resistance to vapour of solvents after 7 d storage IEC 60 455-2	Acetone Benzene Methyl alcohol Hexane Carbon bisulphide	not resistant - not resistant not resistant -	- - - - -
Water absorption Beck-test 9	24 h at 23°C 0.5 h at 100°C	9 3	mg mg
Resistance to liquids after 7 d storage Beck-test 10	Ammonia 10 % Acetic acid 5 % Sodiumhydroxide sol. 1 % Hydrochloric acid 10 % Sulphuric acid 30 % Iso-Octane Toluene Esso Univolt T 56 Midel 7131 Detergent solution	not resistant 7 not resistant -30 20 2 15 5 4 73	mg mg mg mg mg mg mg mg mg mg

These are typical data of the cured material, based on representative measurements.